

Early leavers from education and training in Italy

A regional analysis



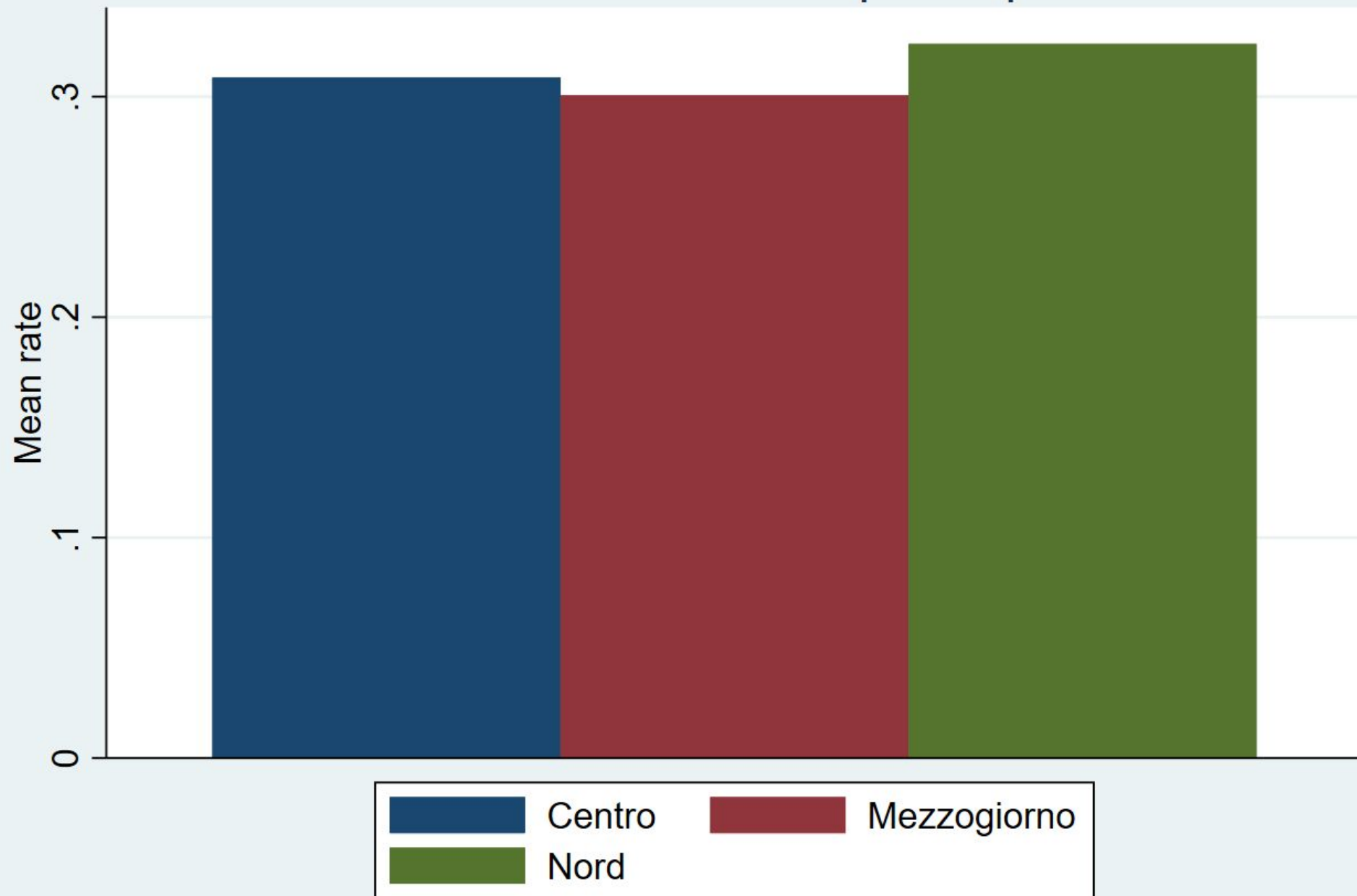
SAPIENZA
UNIVERSITÀ DI ROMA

Paolo Sebastiani
Gianluca Pinneri
Economics of Inequality a.y. 2024/25

Research pathway

- Our objective is to investigate educational and socioeconomic variables at the regional level in Italy
- We started by looking at the university enrollment rates, but we haven't found significant differences between Italian regions
- We then moved to analyzing the enrollment rates in STEM disciplines, and we found significant differences between Northern and Southern regions

Rate of enrollment in STEM disciplines per macro area



Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
Mezzogio	8	.3007081	.0043527	.0123114	.2904155	.3110007
Nord	6	.3239457	.0074321	.0182049	.3048408	.3430506
Combined	14	.3106671	.0050107	.0187483	.2998421	.321492
diff		-.0232377	.008128		-.0409471	-.0055282

diff = mean(Mezzogio) - mean(Nord) t = -2.8590
H0: diff = 0 Degrees of freedom = 12

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0072 Pr(|T| > |t|) = 0.0144 Pr(T > t) = 0.9928

Early leavers from education and training

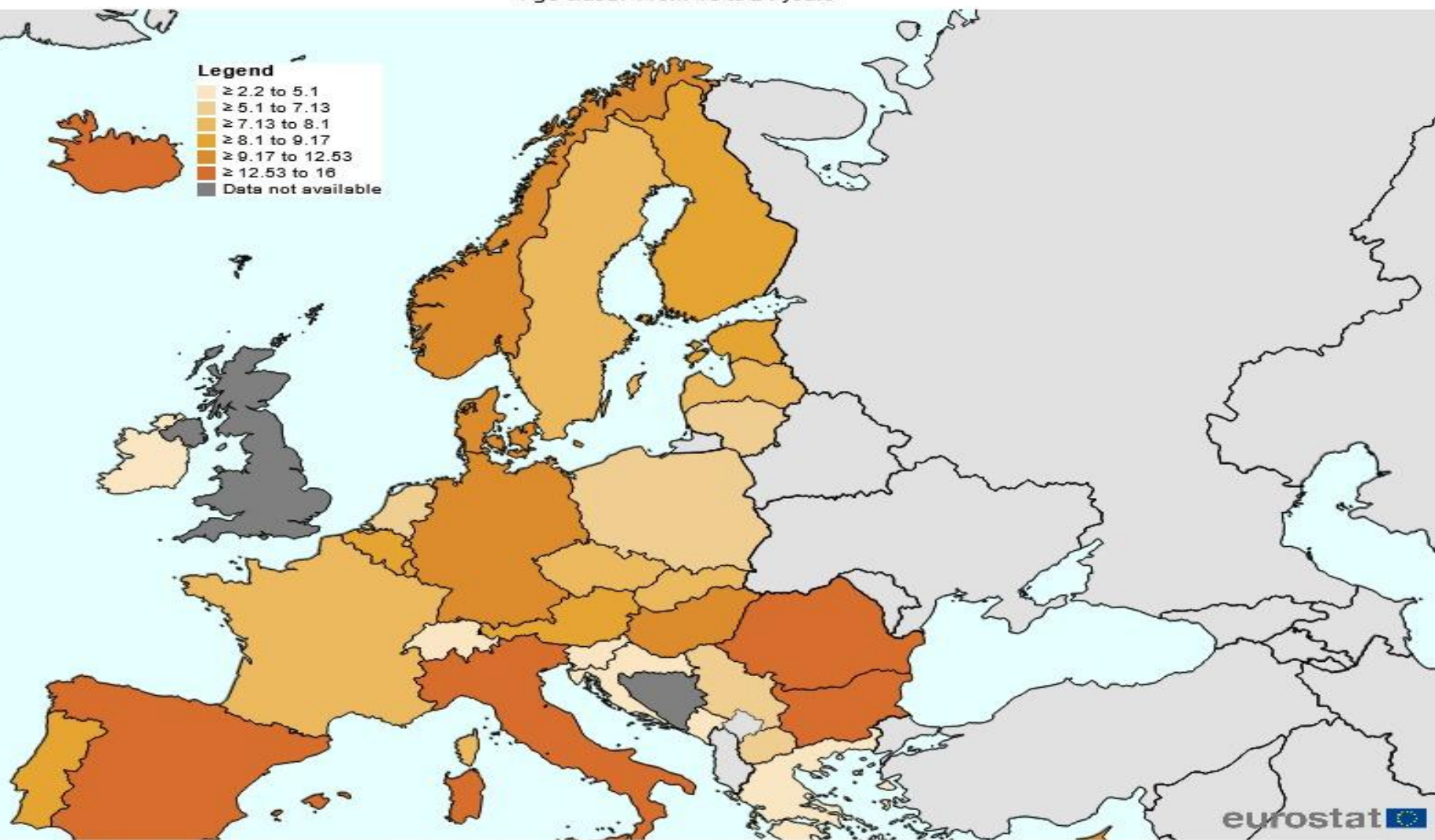
- However, we couldn't find a significant model to explain those differences, but this interesting topic could be deepened in a future research
- Therefore we moved to investigating the early leavers from education and training in Italy, again at a regional level
- Officially defined as *“the % of the pop. aged 18-24 years who don't have any school qualifications beyond the lower secondary school, don't hold professional qualifications obtained in courses lasting at least two years and don't attend school or training activities.”*

Early leavers from education and training by sex and NUTS 2 region

Geopolitical entity (reporting)
/ Time: 2020
Time frequency: Annual
Unit of measure: Percentage
Sex: Total
Age class: From 18 to 24 years

Legend

≥ 2.2 to 5.1
≥ 5.1 to 7.13
≥ 7.13 to 8.1
≥ 8.1 to 9.17
≥ 9.17 to 12.53
≥ 12.53 to 16
Data not available



eurostat 

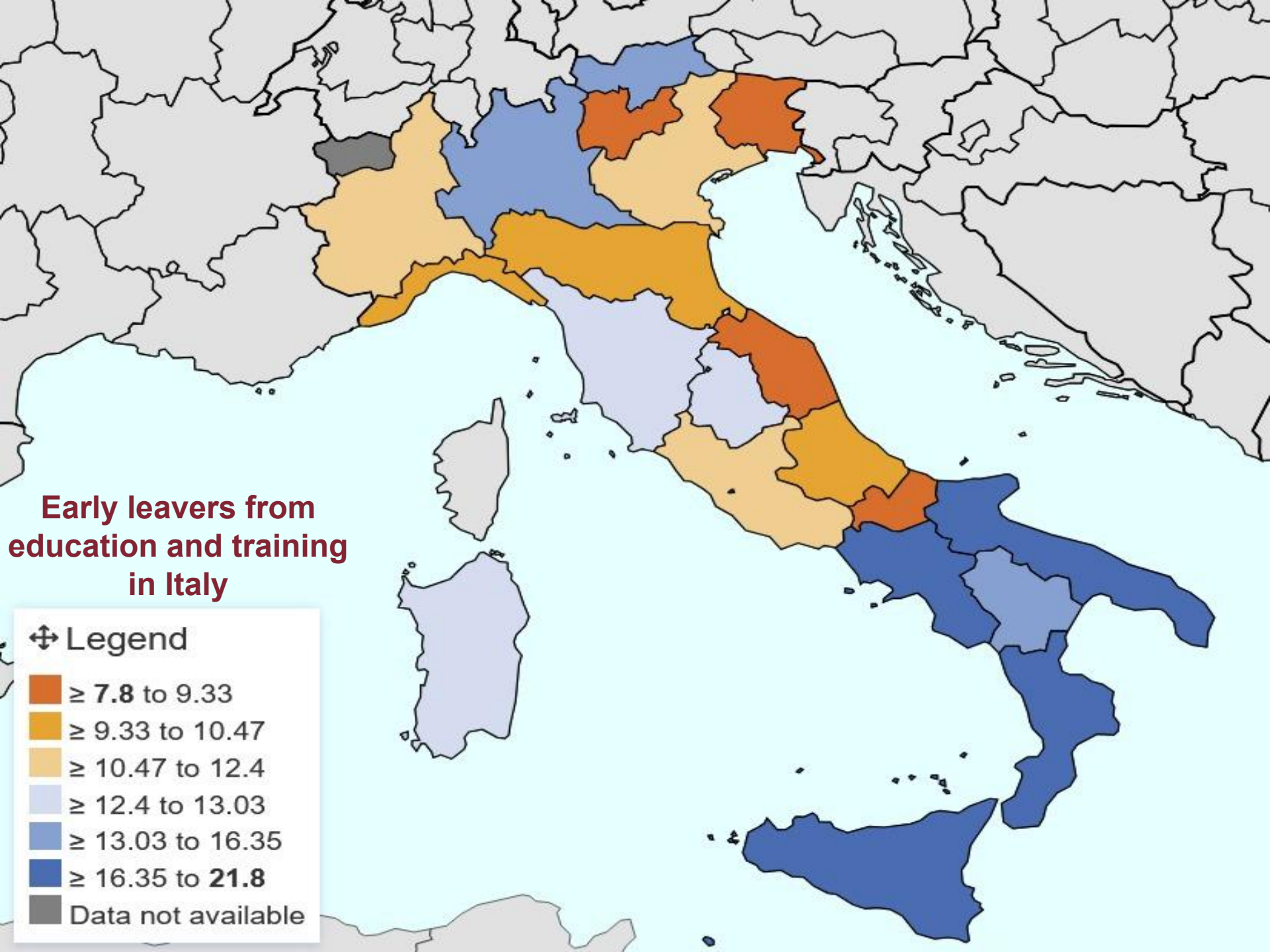
Early leavers from education and training by sex and NUTS 2 region [edat_lfse_16]

Source of data: Eurostat - Last updated date: 24/04/2024 23:00

Disclaimer This map has been created automatically by ESTAT/EC software according to external user specifications for which ESTAT/EC is not responsible. Map included.

General disclaimer of the EC website: https://ec.europa.eu/info/legal-notice_en

Built with Vega Administration boundaries: ©EuroGeographics ©UN-FAO ©Turkstat Cartography: Eurostat - GISCO - 2024



Early leavers from education and training in Italy

Legend

- ≥ 7.8 to 9.33
- ≥ 9.33 to 10.47
- ≥ 10.47 to 12.4
- ≥ 12.4 to 13.03
- ≥ 13.03 to 16.35
- ≥ 16.35 to 21.8
- Data not available

Data

1. Early leavers: Noi Italia 2024 - Istat
2. Gini index: IstatData
3. Population aged 25-64 with at least one degree:
IstatData

The model

$$y_{i,t} = \beta_0 + \beta_1 x_{i,t} + \beta_2 z_{i,t} + \varepsilon_{i,t}$$

- $y_{i,t}$: Early leavers from education and training;
- β_0 : Intercept;
- $\beta_1 x_{i,t}$: Gini index;
- $\beta_2 z_{i,t}$: Population 25-64 with at least one degree;
- $\varepsilon_{i,t}$: Error term.

Results(1)

Source	SS	df	MS	Number of obs	=	20
Model	168.44778	2	84.22389	F(2, 17)	=	19.53
Residual	73.3185786	17	4.31285757	Prob > F	=	0.0000
				R-squared	=	0.6967
				Adj R-squared	=	0.6611
Total	241.766359	19	12.7245452	Root MSE	=	2.0767

Early_leavers_2020	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
Gini_2020_scaled	.7939682	.2222593	3.57	0.002	.325042	1.262894
Pop_25_64_graduated_scaled_2020	-.4896971	.1816528	-2.70	0.015	-.8729511	-.1064431
_cons	-.2151574	8.772315	-0.02	0.981	-18.72312	18.29281

Results(2)

Source	SS	df	MS	Number of obs	=	20
Model	206.183866	2	103.091933	F(2, 17)	=	15.85
Residual	110.569622	17	6.50409539	Prob > F	=	0.0001
				R-squared	=	0.6509
				Adj R-squared	=	0.6099
Total	316.753488	19	16.6712362	Root MSE	=	2.5503

Early_leavers_2019	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
Gini_2019_scaled	.5956824	.2590694	2.30	0.034	.0490937	1.142271
Pop_25_64_graduated_scaled_2019	-.777381	.2253354	-3.45	0.003	-1.252797	-.3019649
_cons	10.63375	10.20844	1.04	0.312	-10.90418	32.17168

Conclusions

- A one-percentage-point increase in the proportion of graduates is associated with a reduction of about 0.4896 percentage points in early school leavers, holding other variables constant.
- A one-unit increase in the Gini index (indicating higher income inequality) is associated with an increase of about 0.794 percentage points in early school leavers, holding other variables constant.

Thank you!